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Abstract:
As a rule, the Intergovernmental Panel on Climate Change (IPCC) is careful to attach warnings to its projections. In recent months, two distinguished commentators have put together a critique of the panel's Special Report on Emissions Scenarios. The report claims to provide the basis for future assessment of climate change, but Ian Castles and David Henderson point to serious flaws in its analysis and results. One key problem with the IPCC's report is the way the scenario-builders have based their projections of future output on national GDP estimates which have been converted to a common measure using market exchange rates. The combination of overstated gaps and of built-in assumptions about the extent of convergence in the average incomes of rich and poor countries yields projections of GDP for developing regions which are improbably high.

Full Text:

The Intergovernmental Panel on Climate Change had better check its calculations

AT THE beginning of 2001 the Intergovernmental Panel on Climate Change (IPCC) released, as the main result of its massive Third Assessment Review, a set of figures that have become the most-cited numbers in the field of environmental policy, and quite possibly the most-cited numbers in any field of public policy. The panel, whose task was to assess the extent to which emissions of greenhouse gases may warm the planet over the coming century, reported that "globally averaged mean surface temperature is projected to increase by 1.4 to 5.8 degrees C over the period 1990 to 2100." This alarming conclusion has become the starting-point for popular and official discussion of global warming and the policies that might mitigate it. Bear in mind how expensive some approaches to the problem, such as the Kyoto Protocol, might be if governments actually succeeded in implementing them. Vast sums are at stake.

As a rule, the IPCC is careful to attach warnings to its projections. Journalists are impatient with that: they prefer "prediction" to "projection" (less vague) and like to talk of temperature rising by "as much as 5.8 degrees " rather than quoting the full range. This is all very misleading--but the panel cannot be blamed for the way its work is reported. What it can be blamed for is the seriously flawed methods it has followed in making its estimates.

In recent months, two distinguished commentators--Ian Castles of the National Centre for Development Studies at Australian National University, formerly the head of Australia's national office of statistics; and David Henderson of the Westminster Business School, formerly the chief economist of the OECD--have put together a critique of the panel's Special Report on Emissions Scenarios (SRES). The report claims to "provide the basis for future assessment of climate change", but Mr Castles and Mr Henderson point to serious flaws in its analysis and results. Last year they began writing to the chairman of the panel. Following an invitation to a technical meeting convened by the IPCC last month, they have offered further comments. The critique which thus evolved is to be published next month*.

One key problem with the IPCC's report, sufficient by itself for Mr Castles and Mr Henderson to declare the document "technically unsound", is the way the scenario-builders have based their projections of future output on national GDP estimates which have been converted to a common measure using market exchange rates. This procedure leads them to overstate the initial gaps in average incomes between rich and poor countries--because prices tend to be much lower in poor countries. Those gaps are in turn crucial for the IPCC's projections, because the method used in the scenarios assumes not only that the rich countries will continue to get richer but also, in most of the 40 scenarios considered, that the greater part of the (overstated) initial gaps between rich and poor will be closed by the end of the century.

The combination of overstated gaps and of built-in assumptions about the extent of convergence in the average incomes of rich and poor countries yields projections of GDP for developing regions which are improbably high. Even the scenarios which give the lowest figures for projected cumulative emissions in the course of the century assume that average incomes in the developing countries as a whole will increase at a much faster rate than has ever been achieved in the past.

Miracles and anomalies

The unreality of the assumptions about economic growth in developing countries is highlighted by disaggregated projections which were recently released on the SRES website. These projections imply that, even for the lowest emission scenarios, the average income of South Africans will have overtaken that of Americans by a very wide margin by the end of the century. In fact America's per capita income will then have been surpassed not only by South Africa's, but also by that of other emerging economic powerhouses, including Algeria, Argentina, Libya, Turkey and North Korea.

The SRES summary for policymakers tells anxious governments that the 40 scenarios "together encompass the current range of uncertainties of future emissions". Plainly, this is incorrect. The panel's low-emissions scenarios make exceptionally optimistic assumptions

about economic growth in the developing world. But it is impossible to say, without running the whole exercise afresh, what the properly calculated range of projections for temperature changes would be.

Mr Castles and Mr Henderson offer a variety of other criticisms of the SRES, and of the panel's treatment of economic issues more generally. They complain, for instance, that history is too much neglected in the consideration of future trends. They also point out that developments in the first ten years of the scenario period, 1990-2000, were pretty clear by the time the SRES was published in 2000, and that in some respects they diverged substantially from the scenarios' projections; yet the report pays them little or no heed. Mr Castles and Mr Henderson argue that the circle of those involved in the climate-change exercise has been too restricted. For the future, the panel should draw on a wider range of economic and statistical interests and expertise. In particular, where its member governments are concerned, there needs to be a greater involvement of economic ministries and statistical agencies, alongside environment ministries.

The full panel meets next week in Paris to review the preparation of its Fourth Assessment Review. It should take the opportunity to consider the Castles-Henderson critique and resolve to do something about it.

*Their letters to the panel are appended to this article on www.economist.com. They will be published in Energy and Environment, Volume 14, No. 2, forthcoming.
